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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,183

12/22/2006

Peter Isberg

43315-230171

6909

26694

7590

12/30/2008

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EXAMINER

AHMED, SHAMIM

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

12/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,183	Applicant(s) ISBERG ET AL.	
	Examiner Shamim Ahmed	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 57-112 is/are pending in the application.
- 4a) Of the above claim(s) 94-112 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 57-93 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/17/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I (claims 57-93) in the reply filed on 10/22/08 is acknowledged. The traversal is on the ground(s) that unity of invention exists. This is not found persuasive because the inventions lack unity of invention as they are not sharing special technical feature which was provided in the earlier office action.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claim 57 is objected to because of the following informalities: at the first line the phrase "for making an electric contact" could have been replaced by "for making an electrical contact" as more art recognized term. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 57-93 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Regarding claim 57, lines 10-12, the phrase "based on the atomic elements in the corresponding $Mn+1AX_n$ compound" renders the claim indefinite because it is unclear how the single elements of the nanocomposite corresponds the multi element

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material compound and what is the meaning of the term "corresponding" to the multi element material compound?

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 57- 63 are rejected under 35 U.S.C. 102(b) as being anticipated by Tuller et al (2002/068488).

As to claims 57,60-61, Tuller et al disclose an electrical contact for silicon carbide devices in which the contact layer of conductive ternary compound (14) including titanium silicon carbide (Ti_3SiC_2) material reads on the claimed multi element material with the general formula of $\text{M}_{n+1}\text{AX}_n$ (paragraph 0007).

Tuller et al also disclose the titanium silicon carbide material further includes materials at least one of Zr, Hf, Al, Ge, Nb, Ta, ----- Mo, Sn, P, As, S, and N (see paragraph 0008-0009) and aforementioned reads on the claimed limitation of "said multi element material also comprises at least one nano-composite comprising single elements----- compound".

As to claims 58-59 and 62-63, Tuller et al teach that the Ti_3SiC_2 material can include other elements discussed above and for a solid solution with the Ti_3SiC_2 with the same or close related crystalline structure (paragraph 0022), wherein the contact material considered to be in an amorphous state as claimed.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 64-93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuller et al.

Tuller et al may not explicitly teach the contact film (14) comprises mixed regions of amorphous regions and nanocrystalline.

However, Tuller et al's contact film 14 having the similar constituents as the claimed ones and it would have been expected to have the similar characteristics as claimed.

As to claims 69-74 and 81, Tuller et al teach the electrical contact 14 is elastically rigid and thin with an excellent thermal conductor (paragraph 0021) and the claimed

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thickness ranges would have obvious to optimize the same by one of ordinary skilled in the art at the time of claimed invention because the a particular thickness of the contact layer depends on the type of device to be electrically connected.

As to claim 87, Tuller et al illustrate that the electrical contact may comprises doped by one of several compounds or elements (paragraph 0027).

As to claims 85-86, 89-93, Tuller et al teach the contact film can be deposited by several techniques such as sputtering, pulsed laser or chemical vapor deposition (paragraph 0020) and furthermore, the process step is not given patentable weight as the claimed invention is directed to a product.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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12. Claims 57-64, 69-74 and 89-93 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5,7-16 of U.S. Patent No. 6,838,627. Although the conflicting claims are not identical, they are not patentably distinct from each other because the invention in the patent '627 encompasses the instant invention because the contact film of ternary carbide with the formula M_3AX_2 reads on the titanium silicon carbide with the formula $M_{n+1}AX_n$.

13. Claims 57-93 are rejected under 35 U.S.C. 103(a) as being obvious over Isberg et al (6,838,627).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing

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that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Isberg et al disclose a contact element having a contact film including Ti_3SiC_2 having the general formula of M_3AX_2 (col.2, lines 52-64) and aforesaid reads on the contact layer material of $M_{n+1}AX_n$ in the instant invention.

Isberg et al teach that the element may comprises H-phase materials M_2BX_m where M is a transitional metal, B is a group B element and X is either C or N and the film thickness may vary with a thickness range of 0.001-1000 μm (col.5, lines 56-67).

Isberg et al may not explicitly teach that the element comprises nanocomposite comprising single elements as claimed.

However, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to choose at least a single elements of X (carbon or nitrogen) in order to form the desired contact element with improved heat stability as suggested by Isberg et al.

Isberg et al also teach that the continuous film (nano laminated film) is deposited on a body of the contact element by CVD, electro-chemically, etc. (col.6, lines 17-25).

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on Tu-Fri (6:00-2:30) Every Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shamim Ahmed/
Primary Examiner, Art Unit 1792

SA
December 18, 2008